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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/645,261	08/20/2003	Weixun Cao		7334

26797 7590 02/20/2007  
SILICON VALLEY PATENT AGENCY  
7394 WILDFLOWER WAY  
CUPERTINO, CA 95014

EXAMINER
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CORRIELUS, JEAN B

ART UNIT	PAPER NUMBER
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2611

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/20/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

## Office Action Summary

Application No.

10/645,261

Applicant(s)

CAO, WEIXUN

Examiner

Jean B. Corrielus

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 17 January 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-3, 5-10, 12, 13 and 16 is/are allowed.
- 6) ☒ Claim(s) 23-29 is/are rejected.
- 7) ☒ Claim(s) 4, 11, 14, 15 and 17-22 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 January 2007 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application
- ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Claim Objections***

1. Claims 4, 11, 14-15, 17-22, 27, 29 are objected to because of the following informalities: claim 4, line 2, after "unit" a limitation such as "to produce a demodulated sample" should be inserted so as to provide antecedent basis for subsequent recitation in the claim. The same comment applies to claim 15. Claim 18 is a method claim, the further limitation "the transmitter comprises a first modulation path and a second modulation path" recited in the claim is not appropriate for a method claim. The same comment applies to claims 14-15, 17, 19-22 and 27. Claim 11 recites an adder to couple the first input and second input to modulate the VCO. However such limitation is not consistent with the drawing that shows an adder 519 that combines an output of loop filter and phase gain. The same comment applies to claim 22. Claim 27 recites "a phase detector to compare two phase modulated signals" the claim further recites a further input coupled to the phase detector to provide a reference frequency. However, it is noted that the phas detector only compares two frequency signals, i.e., "the reference frequency signal and the output of the frequency divider". The phase detector is not seen to receive 3 input signals. See fig. 5 see paragraph 0037. The claim further recites the modulator configured to receive a phase modulated signal and a carrier signal. However, the drawing fig. 5 only shows the modulator configured to receive a signal from adder 531. Claim 29 recites an adaptive phase offset is used to change the phase modulated baseband signal which is applied to the input of a controller of the

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PLL. However, fig. 5 only shows the output of the phase offset is applied only to adder 531 not to the controller. Appropriate correction is required.

### ***Specification***

2. The disclosure is objected to because of the following informalities: the amendment to paragraph 35 of the specification is not consistent with the description of paragraph 37 that recites that the phase detector receives a reference signal as oppose to a digital signal from the controller.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 23-29 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 23, lines 6-7, the limitation "the baseband amplitude signal and the phase signal **have been decomposed in terms** of polar coordinates" is unclear because the amplitude and phase signals are polar representation (coordinates) of a "main signal" and therefore can not be decompose in terms of polar coordinates.

Claim 29 "a phase locked loop", line 8, is vague and indefinite as there is an unclear antecedent in claim 23. Note that any claim whose base claim is rejected is likewise rejected.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sander et al US patent Application Publication S/N US2004/0208157A1 in view of Minoda et al US patent no. 5,661,425.

Sander et al disclose a method and apparatus, see for instance Fig. 12 comprising predistorting a baseband amplitude signal using circuit 1211 and a phase signal using circuit 1213 in accordance with a distortion parameter see paragraphs 0050, 0051, and 0101, in addition, note at paragraph 0050, Sander et al teaches that the purpose of the distortion is to correct for non-linearity, it would inherently includes all non-linear devices in the transmitter such as amplifiers and the VCO, frequency offset is also provided by way of circuit 1232; a PLL is provided, responsive to the phase signal see fig.12; modulating the power amplifier 1220 with the amplitude signal and an output coupled from the VCO 1831. Sander further teaches that the amplitude and phase signals are (have been decomposed in term of) polar coordinate see output of circuits 1209, 1809 and 2013. However, Sander et al do not teach that the PLL includes phase

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gain and phase offset. Minoda et al teaches a PLL provided with "phase servo gain" (phase gain) and "phase correction" (phase offset) see inputs to table 15 of fig. 4. Given that fact, it would have been obvious to one skill in the art to incorporate such a teaching in Sander et al in order to correct the PLL clock as taught by Minoda see col. 4, lines 38-39.

### ***Drawings***

7. The drawings were received on 1/17/07. These drawings are acceptable.

### ***Allowable Subject Matter***

8. Claims 1-3, 5-10, 11-13, 16 are allowed.

9. Claims 4, 14, 15, and 17-22 would be allowable if amended to overcome the objection set forth above.

10. Claim 24-29 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

### ***Conclusion***

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jean B. Corrielus whose telephone number is 571-272-3020.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay Patel can be reached on 571-272-2988. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
Jean B. Corrieus  
Primary Examiner  
Art Unit 2611

2-15-07